

A. Applicants' Claimed Species Not Embraced by Armand '640

The claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species is not *embraced* by the genus defined by the "modified" olivine general formula (I) (See, "general formula (I)" as recited in Applicants' Amendment filed October 17, 2003) described in the Armand '640 patent. Application of the four "conditions" to the general formula does not lead one to derive the claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species from the "modified" olivine general formula (I).

The Examiner continues to assert there is an error in the fourth "condition" (namely,  $x + s - p = x - y + t + 2q + 3r$ ) recited by Armand '640. In the previous Office Action, the Examiner stated the fourth "condition" "is essentially indicating that the anionic charges, including substitutions, must be equal to the cationic charges, including substitutions."

The Examiner bases her assumption that the fourth "condition" contains an error, on the fact that the equation is not valid for the pristine olivines (e.g. compounds of the formula  $\text{LiMPO}_4$  wherein M is  $\text{Fe}^{2+}$  or  $\text{Mn}^{2+}$ ). However, the Examiner errs by assuming the fourth "condition" applies to the pristine olivines. In fact, the fourth "condition" applies to the *modified olivines*. There is no teaching or suggestion in Armand '640 that the fourth "condition" applies to the pristine olivines. Applicants respectfully submit that in the absence of a teaching or suggestion to the contrary, the Examiner must take Armand '640 for its explicit teachings, and assume that all four "conditions" were so authored so as to define a specific genus of compounds Armand et al. deemed to be their invention. Applicants submit that the Examiner must accept that the fourth "condition" was so authored so that only certain compounds having particular types of substitutions could be derived from Armand's "modified" olivine formula (I).

Applicants submit that it is improper for the Examiner to base a rejection on an interpretation of a reference beyond its express teachings, when the interpretation can only be supported by accepting that an error has occurred in the reference and it is the Examiner's correction of that assumed error that supports the interpretation. Further, it is only with hindsight in light of Applicants' claimed invention that the Examiner is now looking at the reference, detecting an error in its teachings and applying the corrective interpretation in order to obviate Applicants' invention. Applicants submit that such corrective reading of the literal teachings is improper and can not serve as a proper basis for rejection.

Accordingly, Applicants submit the claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species is not *embraced* by the genus defined by the "modified" olivine general formula (I).

B. Applicants Claimed Species Not Suggested by Armand '640

Applicants submit that the claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species is not obvious in view of the teachings of the Armand '640 patent, because the teachings of the Armand '640 patent do not suggest the claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species. The Armand '640 "modified" olivine general formula (I) describes an extremely large genus of compounds. However, the Armand '640 patent provides no express teachings which would motivate one to pick and choose from among the very large genus of compounds defined by the Armand '640 "modified" olivine general formula (I), to arrive at the claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species.

It is further submitted, the Armand '640 patent teaches away from the claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species, because Armand '640 teaches that modification of both the anion and cation moieties is preferable in order to achieve the better properties over the pristine "ordered" olivine compound, namely enhanced ionic and electronic conductivity. Applicants' claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species, in contrast, represents a compound wherein only the cation (M) moiety of the olivine structure is modified, namely by partial substitution of  $\text{Mg}^{2+}$  for  $\text{Fe}^{2+}$ . The claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species lacks substitution of the anion moiety, and also lacks substitution of the cation ( $\text{Fe}^{2+}$ ) moiety with a *transition metal*.

Finally, Applicants' claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species exhibits superior capacity and less first-cycle loss than the material described in Example 2 of Armand '640. In Applicants' Amendment filed on October 17th, 2003, Applicants submitted a Declaration demonstrating that Applicants' claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species exhibits superior properties over the only modified olivine explicitly taught in Armand '640. However, the record does not indicate whether or not the Examiner considered Applicants' Declaration in forming the present Office Action. *Applicants respectfully request that the Examiner acknowledge her review of the Declaration, and her reasons why the secondary considerations presented therein do not render Applicants' claimed invention non-obvious in view of Armand '640.*

Therefore, Applicants respectfully submit that the teachings of the Armand '640 patent do not suggest the claimed  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species.

C. All Limitations of All Claims Not Considered

As noted above, Claims 179 - 227 stand rejected under 35 U.S.C. §103(a) as being obvious in view of Armand '640. However, Applicants' claimed electrode active material (the  $\text{LiFe}_{1-y}\text{Mg}_y\text{PO}_4$  species) is not the only limitation recited in the pending Claims. Applicants respectfully request that the Examiner make of record why all of the limitations recited in the pending Claims are obvious in view of the teachings of Armand '640.

6. Finality of Rejection

Applicants respectfully submit that, in view of Applicants' remarks in Sections 2 and 5C herein, the Examiner's final rejection is premature. Accordingly, Applicants respectfully request that the Examiner, upon consideration of the present Response, withdraw the finality of the present rejection.

7. Conclusion


In view of the remarks presented herein, Applicants submit that every objection and grounds for rejection stated in the final Office Action mailed April 9, 2004, Paper No. 31, have been overcome. Accordingly, Applicants respectfully request allowance of Claims 179 - 227.

Should anything further be required, the Examiner is respectfully requested to telephone the undersigned at 702-558-1071.

Respectfully submitted,

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